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RECORD OF ORAL HEARING
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte COLIN J. WEST and MICHAEL A. TAYLOR

Appeal 2009-009371
Application 10/535,493
Technology Center 1700

Oral Hearing Held: April 13, 2010

Before EDWARD C. KIMLIN, TERRY J. OWENS, and
PETER F. KRATZ, Administrative Patent Judges

ON BEHALF OF THE APPELLANTS:

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1 The above-entitled matter came on for hearing on
2 Tuesday, April 13, 2010, commencing at 1:04 p.m., at the U.S. Patent
3 and Trademark Office, 600 Dulany Street, Alexandria, Virginia,
4 before Lori B. Allen, Notary Public.

5 JUDGE KIMLIN: Good afternoon, Mr. Spooner.

6 MR. SPOONER: Good afternoon. With the exception of
7 Judge Owens, I think I saw you two about a month ago. And I was
8 looking at this case. Of course I didn't know who the panel was. But
9 I remembered the previous case, and I said, "Let's take a look at it,"
10 looked at the decision. I think it fits almost all four squares on the
11 situation.

12 So with that, for the record, I'm here representing Airbus
13 UK, Ltd. The problem in the prior art is getting a good seal between
14 aircraft structures. And the normal way is to use a liquid epoxy in
15 between those in structures -- between those two structures. You then
16 bolt it down. The epoxy solidifies, polymerizes, and then it forms a
17 seal between the two surfaces. That has some problems in that it
18 requires careful surface preparation, so you have to have a high degree
19 of experience or training or whatever to prepare the surfaces correctly.

20 Second thing is the fairly short time for the curing of
21 epoxies means that you mix up a batch and then you have to apply it.
22 Some of that batch is going to cure before you can apply it, so you
23 have to mix up another batch. So there's a fair amount of wastage.

24 And the third one is the issue of fretting. And I don't
25 know that the specification explains that clearly enough, but it's where
26 you have two surfaces that are going to be joined by a bolt, and you

1 apply the epoxy to the space between the surfaces in liquid form. And
2 then you put your bolt in and you tighten it up -- that's a nut -- tighten
3 it up. It pulls the surfaces into physical contact at this area right here,
4 so it squeezes the epoxy out. And that's -- and it allows the working
5 of those two surfaces together to fret the surfaces, which promotes
6 corrosion and other bad things.

7 So that's the problem with the existing system.

8 What the inventors found out is that if you use a
9 polysulfide sealant and you actually apply a thin layer to a surface and
10 then, contrary to what everybody does, allow it to cure first, it will
11 cure so that it cannot be squeezed out as it would be in liquid form,
12 always -- some of it's always going to remain there. And then you can
13 compress it, and if you use a certain amount of pressure, it will
14 actually seal to the other surface, even though no special preparation's
15 required, even though it has gone through a complete cure.

16 JUDGE KIMLIN: Do you have to use more pressure than
17 what you would with epoxide or typical sealant?

18 MR. SPOONER: No, no. Well, normally the liquid, in
19 that situation, is just applied to both, and then you just torque it down
20 to whatever your normal pressure is, and that's why in some instances
21 you actually get the sealant squeezed out of the area. With this,
22 they've actually found that with pressure -- it's a little bit more than
23 just a finger pressure, I think Dr. Harris said in his Declaration. But it
24 doesn't require a great deal of pressure. And if that pressure is applied
25 over a period of time, it will actually form a bond with the other
26 surface, and so that's a much better way to do it. So our claim --

1 JUDGE KIMLIN: Would that work as well with epoxy
2 sealant or other sealant, or --

3 MR. SPOONER: I don't think so, because I think an
4 epoxy sealant actually hardens. It -- when it polymerizes it forms a
5 bond with the surface that it's attached to, so that if you let the epoxy
6 cure first, number one, it wouldn't be conformable to the surface
7 features. It would -- while you could compress it, it probably doesn't
8 compress much. If you look at most epoxies -- well, not polyester.
9 That's probably not a good -- the -- most epoxies, though, while you
10 can deform them, they're pretty stiff. And so --

11 JUDGE KIMLIN: So essentially this methodology is
12 peculiar to the polysulfide.

13 MR. SPOONER: Yes, sir, yeah.

14 JUDGE KIMLIN: Okay.

15 MR. SPOONER: And that's why we cite polysulfide in
16 the claim. I mean, if the methodology were applicable to others,
17 they'd have kept it a little broader, I suspect.

18 So in this case, much like the last one, the Examiner just
19 could not grasp what we had said in the spec or had doubts as to
20 whether that was significant or not, so we put in a Declaration from
21 the same Dr. Steven Harris as we had in the last case. And Dr. Harris,
22 as an expert in the field of epoxy and non-epoxy sealants, that's in
23 Declaration paragraphs 1 and 2. Declaration's paragraph 6, he says,
24 "Those of ordinary skill in the art will know that polysulfide sealants
25 cure in about 14 days to assure a hardness of approximately 39, and

1 are tack-free and non-adherent to other materials upon contact or even
2 light finger pressure."

3 In other words, you stick it together after it's cured and it
4 doesn't necessarily bond. If -- you have to really push it together to
5 get it to actually bond to that other surface. I would note that the
6 Examiner has never anywhere disputed any of Dr. Harris' credentials
7 as an expert, any of his work experience which allows him to opine as
8 to what the level of ordinary skill might be in the art. She hasn't
9 disputed any one of his statements, which are fact statements, and his
10 opinions based upon the prior art references that he's looked at.

11 JUDGE KRATZ: In the Answer, I think in responding to
12 those arguments I believe the Examiner is disputing some of the
13 conclusions that those statements are based on, at pages, I guess, 13 to
14 15 of the Answer.

15 MR. SPOONER: I thought that those were disputes as to
16 the conclusions.

17 JUDGE KRATZ: Well, that's what I'm saying,
18 conclusion.

19 MR. SPOONER: Yeah.

20 JUDGE KRATZ: It's stating the -- while there might
21 be -- while the Appellant may state, for example, as you were pointing
22 out, that a cured layer has a certain cure hardness, etc., the Examiner
23 says the spec doesn't require that for curing. So the Examiner is
24 disputing your claim when you use the word "cure" --

25 MR. SPOONER: Right.

1 JUDGE KRATZ: -- would require that. So I think there's
2 a dispute about that.

3 MR. SPOONER: Right. But I don't think she offers any
4 evidence.

5 JUDGE KRATZ: I think the spec. of the Application and
6 the evidence relied on by the Examiner, I would take it, would be the
7 evidence she has to rely on.

8 MR. SPOONER: But that evidence I don't think says
9 that -- it says partially curing, and if you read the context of that
10 paragraph that she recites, they're talking about curing to the extent
11 that it can then be put on these sheets of plastic and then chopped up
12 in strips and later used.

13 JUDGE KRATZ: No doubt there is a difference between
14 your viewpoints.

15 MR. SPOONER: Right.

16 JUDGE KRATZ: I'm just saying there is -- I think there is
17 a dispute going on about the --

18 MR. SPOONER: Well, I mean, I didn't -- I saw her state
19 that she felt that her definition was there. But I didn't see any dispute
20 as to Dr. Harris' credentials, his expertise, his bona fides, or even
21 dispute the statements that he made. She just offered alternative
22 statements, I think.

23 JUDGE KRATZ: Disputes the import of those
24 statements.

25 MR. SPOONER: Yeah.

1 JUDGE KRATZ: And the conclusions that are reached
2 within those statements --

3 MR. SPOONER: Sure, right. So I mean, he states that
4 there is no disclosure in the John reference of any cured polysulfide
5 sealant being applied to a mating surface. They partially cure it, but
6 they don't cure it in the way that those of ordinary skill in the art
7 understand "cure" to mean.

8 JUDGE KRATZ: Now when you go to John, for
9 example, I think that the John reference did talk about -- similar to
10 your spec. It's laid out somewhat similarly. In the background they
11 talk about problems in the prior art and problems with when you have
12 these mating surfaces where you put on the liquid, that you bring them
13 together. Some of the sealers are going to be -- going to flow, and
14 you're going to lose some. That's in column 1.

15 MR. SPOONER: Right, mm-hmm. Yeah.

16 JUDGE KRATZ: And then they go forward, and they
17 discuss that they're going to take this polysulfide and they're going to
18 cure it between some removable polyethylene materials.

19 MR. SPOONER: Right, sheets.

20 JUDGE KRATZ: And they're going to allow it to cure.
21 They put it on one. They allow it to cure to a certain extent. And
22 then -- and they don't say -- they say they stand it at room
23 temperature, for example at column 2, for at least four hours, and they
24 cut it into sheets, and they package it for use. They can even roll it
25 up. They don't say how long they're going to leave it sit afterwards
26 before they actually use it.

1 MR. SPOONER: Right.

2 JUDGE KRATZ: And then when they -- and then they
3 say, "curing is completed," the bottom of column 2, "within about 12
4 hours at normal room temperature or somewhat shorter periods at
5 elevated temperatures."

6 MR. SPOONER: Right.

7 JUDGE KRATZ: And then they go on to talk about that
8 film that was produced that's described -- it is then going to be placed
9 onto a metal surface.

10 MR. SPOONER: Right. But --

11 JUDGE KRATZ: And then adhere to that metal surface.

12 MR. SPOONER: But they don't say curing it on the
13 surface.

14 JUDGE KRATZ: They don't say -- that's the point.

15 MR. SPOONER: Right.

16 JUDGE KRATZ: They don't say -- product claim 22,
17 which -- the question there would be is there a distinction in the
18 product or not?

19 MR. SPOONER: Cured thereon prior to assembly.

20 JUDGE KRATZ: That's a method limitation within the
21 product claim. The question would be would the product --

22 MR. SPOONER: Well, this is an assembly.

23 JUDGE KRATZ: Right.

24 MR. SPOONER: It's a combination.

25 JUDGE KRATZ: The reference assembly uses
26 rivets -- forms an assembly. You look at the one figure of John that

1 has the polysulfide between the two metal plates with a rivet. And so
2 the question there would be would that product, that assembly -- why
3 would your assembly be different than that assembly as a product?

4 MR. SPOONER: I -- that issue hasn't come up, I don't
5 believe. But --

6 JUDGE KRATZ: There's an anticipation rejection on
7 that --

8 MR. SPOONER: But I'm speculating that the -- the -- it is
9 not cured onto the one surface. You may get a different seal or
10 adherency at that original -- in other words, when you put it on there,
11 allow it to cure and then put the other surface down there. I would
12 suspect that there's a difference in the cure. So merely taking a chunk
13 of partially cured polysulfide sealant, which is what they're talking
14 about in John, putting it between the two metal surfaces and then
15 squeezing it, as I understand you interpret John. I think that --

16 JUDGE KRATZ: Well, I'm just -- I'm giving you an
17 interpretation, I believe, that the Examiner's use of John. Because I
18 believe that even in the Declaration that you filed, the Declarant stated
19 that your curing is -- I think it was paragraph 19 of the Dec. -- says it
20 was approximately 99 percent cured. And then as you talked about
21 earlier, there is some bonding that can occur subsequent to that when
22 you put it on the other plates.

23 MR. SPOONER: Right. That's bonding. But that's --

24 JUDGE KRATZ: But that would be also cross-linking --

25 MR. SPOONER: Well, I don't know that it would be.

26 That's what we think of as curing, is the polymerization cross-linking.

1 JUDGE KRATZ: And I think in your Spec. you mention
2 there could be cross-linking that occurs subsequent to -- especially
3 when you put a layer on each of the plates, you could have some
4 cross- linking in those materials, which would suggest that it's not
5 completely cured even -- in your case, too. And of course the --

6 MR. SPOONER: Well, I don't think anything is ever
7 completely cured, so it's what those of ordinary skill in the art would
8 consider cured versus uncured.

9 JUDGE KRATZ: Right. So now we're into what would
10 be a partial cure and --

11 MR. SPOONER: Sure. I agree, yeah. And -- but again,
12 the evidence of record, and I guess the Board can ignore it, from Dr.
13 Harris, though, is that this is what those of ordinary skill in the art
14 think of as cured. When you say it is cured, it is at least 99 percent
15 cured, as per his Declaration.

16 JUDGE KRATZ: Right.

17 MR. SPOONER: And so John doesn't teach anything like
18 that. It says it's done, what, 12 hours later, and -- after you put it
19 together. And it only cures for two hours to the non-spreadable state.

20 JUDGE KRATZ: Now that paragraph 6 of the dec that
21 you're referring to of Harris, where he talks about -- hardness --

22 MR. SPOONER: Yeah.

23 JUDGE KRATZ: -- the 99 percent cured came from what
24 paragraph? That was a different paragraph, I believe.

25 MR. SPOONER: That was 19.

26 JUDGE KRATZ: That was 19.

1 MR. SPOONER: Yeah.

2 JUDGE KRATZ: Paragraph 19, where that is stated.
3 Does the Declarant ever state that this is what one of ordinary skill
4 would understand the word "cured" to typically mean? Or does he
5 just state this is what the Declarant as an expert believes is happening
6 in the case of this particular -- of -- you know, with respect to John or
7 his Application -- or the Application of the Applicant -- as an expert,
8 not as speaking as to what he thinks one of ordinary skill in the art
9 would --

10 MR. SPOONER: I don't see that specific statement with
11 one of ordinary skill in the art. He says in 19 that based upon the
12 disclosure of the alleged curing cycles in John, it is clear that the John
13 polysulfide sealant may never achieve more than 50 to 70 percent cure
14 during the time period specified. In the time period for polysulfide
15 sealant curing specified in the current specification, ie. 14 days, the
16 sealant is approximately 99 percent cured, and therefore this is the
17 definition to the word cure as used in the specification and in the
18 claims. Thus John discloses an uncured polysulfide sealant in his
19 assembly process. So that's how he distinguishes between the
20 requirement that you have it cured before you assemble, as opposed to
21 John where it's partially cured and then assembled.

22 So anyway, there are a number of statements by Dr. Harris
23 in his Declaration which relate to both the John reference and how one
24 of ordinary skill in the art would construe the claims, the benefits,
25 defects in the prior art, paragraphs 12 to 15. The invention solves the
26 problems in the art, paragraph 16. Paragraph 17, that it would

1 be -- this may be the one that you're looking for. Those
2 of -- paragraph 17, second sentence. "Those of ordinary skill in the
3 art in the polysulfide sealant field will be well aware that polysulfide
4 sealants typically cure in around 14 days, and this is disclosed in the
5 originally filed specification, page 6, lines 18 to 20."

6 So that is a statement attributed to what one of ordinary
7 skill in the art would understand reading the spec, and it's consistent
8 with what's disclosed in the spec.

9 So we think that the claims reflect the distinction between
10 the claimed invention and the John disclosure. John teaches only
11 partial curing and doesn't teach partial curing on one of the metal -- on
12 one of the surfaces. So he says you cure it, put these plastic films on
13 each side, cut it into strips and then you cart it off and use it as sealant
14 to stick into your assembly somewhere.

15 So it's not really being cured on the material, and it's not
16 really fully cured, 99 percent. It's only 12 hours or something like
17 that.

18 JUDGE KIMLIN: Are there any comparative results
19 showing that if you cure it entirely on the mating surfaces that you get
20 a better seal than if you partially cure it before?

21 MR. SPOONER: No. That didn't really come up during
22 prosecution.

23 JUDGE KIMLIN: Then what's your argument against the
24 Examiner's response? There's only two ways to do it. Either you cure
25 it before you put it on or after you put it on.

1 MR. SPOONER: Right. And our view was that John
2 cures it after you put it on. And so we didn't feel a need to put in any
3 declaration as to -- as to the type of benefit, how much better a seal
4 you get than a regular epoxy or a polysulfide where you partially cure
5 it, put it together. Again, if it's partially cured you're going to have a
6 tendency towards this. They say they cure it to a non-spreadable state,
7 and I think in two hours.

8 JUDGE KIMLIN: But that's simply speculation. I mean,
9 without any comparative data --

10 MR. SPOONER: Right. That is my speculation, yes, sir.
11 But that's a consequence of being cured in the definition of 99 percent
12 cured. It's not going to flow away from that junction point. If it's
13 partially cured, it can.

14 JUDGE KIMLIN: Of course, partially cured could be 80
15 percent cured, and it would run nowhere either.

16 MR. SPOONER: Odds are good that it would take a long
17 time to run somewhere. So --

18 JUDGE KRATZ: And John also speaks to that at column
19 2, line 63. He talks about that in about two hours it will cure, the
20 mixture that he has, that the polysulfide sealant will cure in about two
21 hours to a non-spreadable state. And then he takes that batch and puts
22 it in between the polyethylene foam sheets and then can remove those
23 foam sheets before he applies it onto another surface.

24 MR. SPOONER: Right.

1 JUDGE KIMLIN: And so he does have it in a state that it
2 is cured to a point where it's non-spreadable before he puts it on any
3 of the mating surfaces.

4 MR. SPOONER: It's partially cured. Yes, sir.

5 JUDGE KRATZ: But -- part. But -- at a point where it
6 won't spread.

7 MR. SPOONER: I would concede --

8 JUDGE KRATZ: According to John, where it's
9 non-spreadable.

10 MR. SPOONER: It's non-spreadable. But in the context
11 of this -- and that issue never came up either, so obviously Dr. Harris
12 didn't opine as to what that means, non-spreadable. But I think it's
13 pretty clear that what that -- spreadable is where you can take a
14 spatula or something like that and spread a thin layer on something. If
15 this cures to a non-spreadable, that means that you're not going to be
16 able to take a knifeful or a spatula or something like that and spread it
17 out. That doesn't say that under pressure it won't flow out from the
18 junction, and that's -- that's one of the benefits of having it cured
19 before you assemble.

20 JUDGE KRATZ: Just to clarify something, as I
21 understand it when -- we were talking about there may be two
22 different ways of doing it. One, you cure it after -- you would cure it
23 after they're assembled.

24 MR. SPOONER: Yes.

25 JUDGE KRATZ: Or you cure it before they're assembled.

26 MR. SPOONER: Right.

1 JUDGE KRATZ: And then when you cure before they
2 are assembled, we have it looks like two different ways of doing that.
3 In John you would partially cure in your vernacular or the -- in which
4 you're arguing today, to a point of maybe 50 to 70 percent and then
5 put it onto a mating surface, and then cure it the rest of the way after
6 they're joined together.

7 Whereas in your case, in the product claim you make it
8 clear, at least in the product by process limitation of the product claim
9 that the polysulfide sealant is cured while it's on one of the mating
10 surfaces.

11 MR. SPOONER: Yes.

12 JUDGE KRATZ: In the method Claim 1 it's not quite as
13 clear that you have that limitation expressed the same way. You say
14 that's it's going to be applied to at least one mating surface, a layer of
15 polysulfide sealant, allow the sealant to cure, after allowing the
16 sealant to cure, bringing together the mating surfaces. You don't tie it
17 in strictly by saying that there's an order to these steps, but you feel
18 there's enough there to imply that the order is there, that the cure
19 doesn't occur until after it's on a mating --

20 MR. SPOONER: Oh, we specifically put that limitation,
21 "after allowing said sealant to cure, bringing together the mating
22 surfaces."

23 JUDGE KRATZ: But my question was is the allowing the
24 sealant to cure step in the preceding paragraph, could that have
25 occurred prior to applying it to one of the mating surfaces?

1 MR. SPOONER: I think it has to. I mean, it says,
2 "applying to at least one of the mating surfaces."

3 JUDGE KRATZ: Okay. You understand there's --

4 MR. SPOONER: I don't see your -- I'm missing the
5 distinction.

6 JUDGE KRATZ: Yeah. The distinction is is -- does
7 some of the curing occur before you apply to one of the mating
8 surfaces?

9 MR. SPOONER: Oh.

10 JUDGE KRATZ: Which is similar to what John --

11 MR. SPOONER: That's a good point. I mean, it could,
12 presumably. I don't -- that issue hasn't come up before either. So
13 what you're saying, it doesn't say applying a layer of uncured
14 polysulfide sealant.

15 JUDGE KRATZ: Right. Although it's argued that's what
16 you mean by that language --

17 MR. SPOONER: Yeah.

18 JUDGE KRATZ: -- I believe on page 11 of the Brief.

19 MR. SPOONER: Right. Right. I mean, that is what's
20 meant. But I'm just looking for -- all right, where is the loophole in
21 here?

22 JUDGE KRATZ: Right.

23 MR. SPOONER: And that -- that could be an argument. I
24 agree. I think --

1 JUDGE KRATZ: Okay. But your feeling is that when
2 you look at your spec that the interpretation would be -- it would be
3 cured while it's on the -- one -- that mating surface.

4 MR. SPOONER: Exactly, yeah.

5 JUDGE KRATZ: Okay.

6 MR. SPOONER: I mean, they -- they say it. You apply
7 it, you allow it to cure, then you assemble. And so it's pre-assembly
8 curing, as opposed to post-assembly curing. Now if you say cured is
9 20 percent, fine. John, then, is cured. But if you say curing is 95
10 percent or 99 percent, John clearly doesn't do that. The only evidence
11 we have is Dr. Harris and the specification, the context of the
12 specification as to what curing means.

13 JUDGE KRATZ: The remaining time you have, do you
14 have anything to say about all the 103s that are out there --

15 JUDGE KIMLIN: You don't have much time.

16 MR. SPOONER: Looking at the 103s, the Examiner has
17 got to show that all the bits are there in the combination, and I don't
18 think any of the combination of references showed all the bits, the
19 pre-assembly curing. And in fact one would argue that the John
20 reference would teach away from pre-assembly curing. So --

21 JUDGE KRATZ: Okay, thank you.

22 MR. SPOONER: Anything else?

23 JUDGE KIMLIN: I think we're over our time limit.

24 MR. SPOONER: Okay, great.

25 JUDGE KIMLIN: Well, it's an interesting case.

1 MR. SPOONER: It's -- but I hadn't thought of that. But
2 that -- that's a -- I like that argument. I don't like it, but it's --
3 Whereupon, at 1:29 p.m., the proceeding was concluded.